TOTZTT 6T89E660

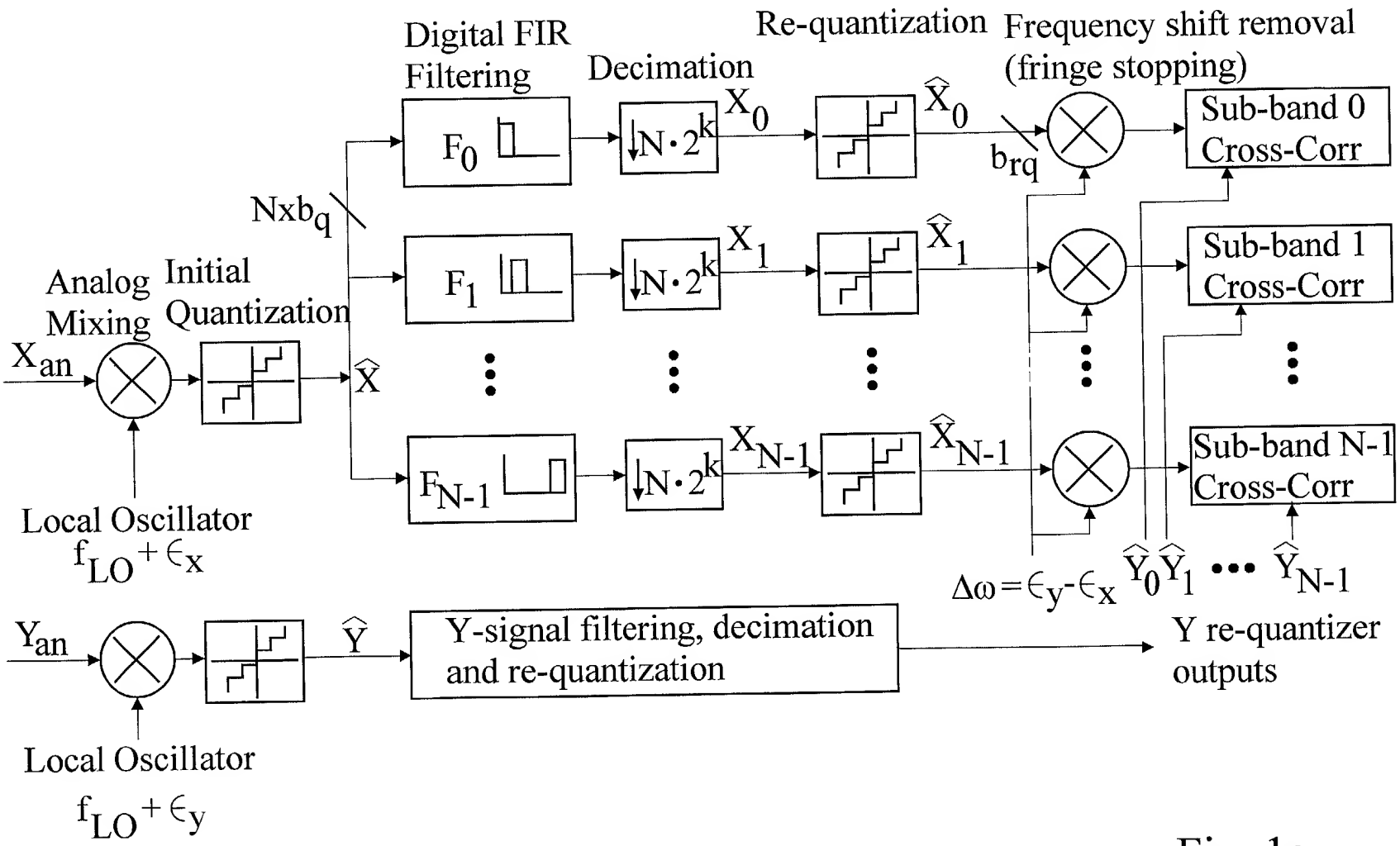

Fig. 1a

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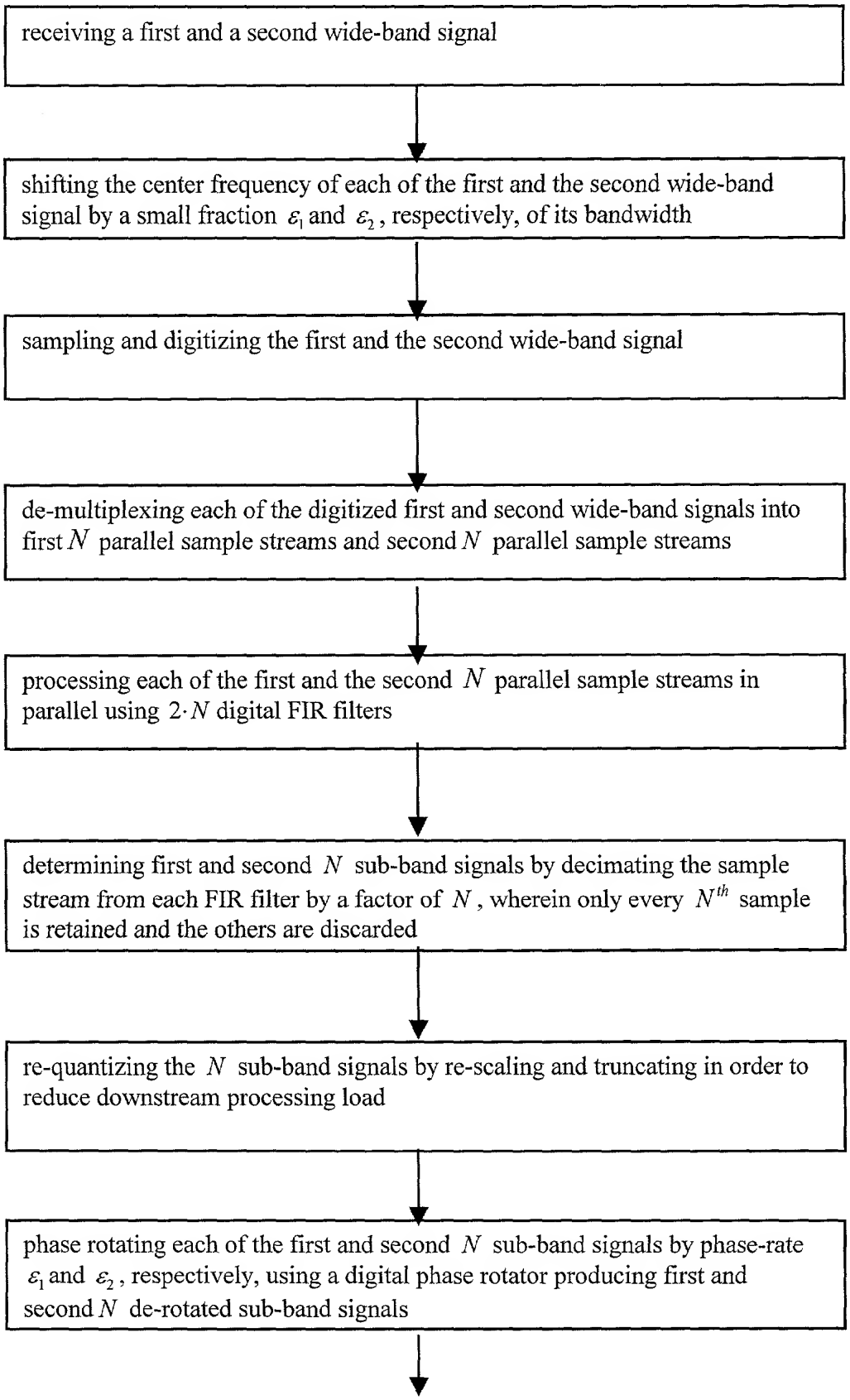
receiving a first and a second wide-band signal
shifting the center frequency of each of the first and the second wide-band signal by a small fraction ε_1 and ε_2, respectively, of its bandwidth
sampling and digitizing the first and the second wide-band signal
de-multiplexing each of the digitized first and second wide-band signals into first N parallel sample streams and second N parallel sample streams
processing each of the first and the second N parallel sample streams in parallel using $2 \cdot N$ digital FIR filters
determining first and second N sub-band signals by decimating the sample stream from each FIR filter by a factor of N, wherein only every N^{th} sample is retained and the others are discarded
re-quantizing the N sub-band signals by re-scaling and truncating in order to reduce downstream processing load
phase rotating each of the first and second N sub-band signals by phase-rate ε_1 and ε_2, respectively, using a digital phase rotator producing first and second N de-rotated sub-band signals

Fig. 1b

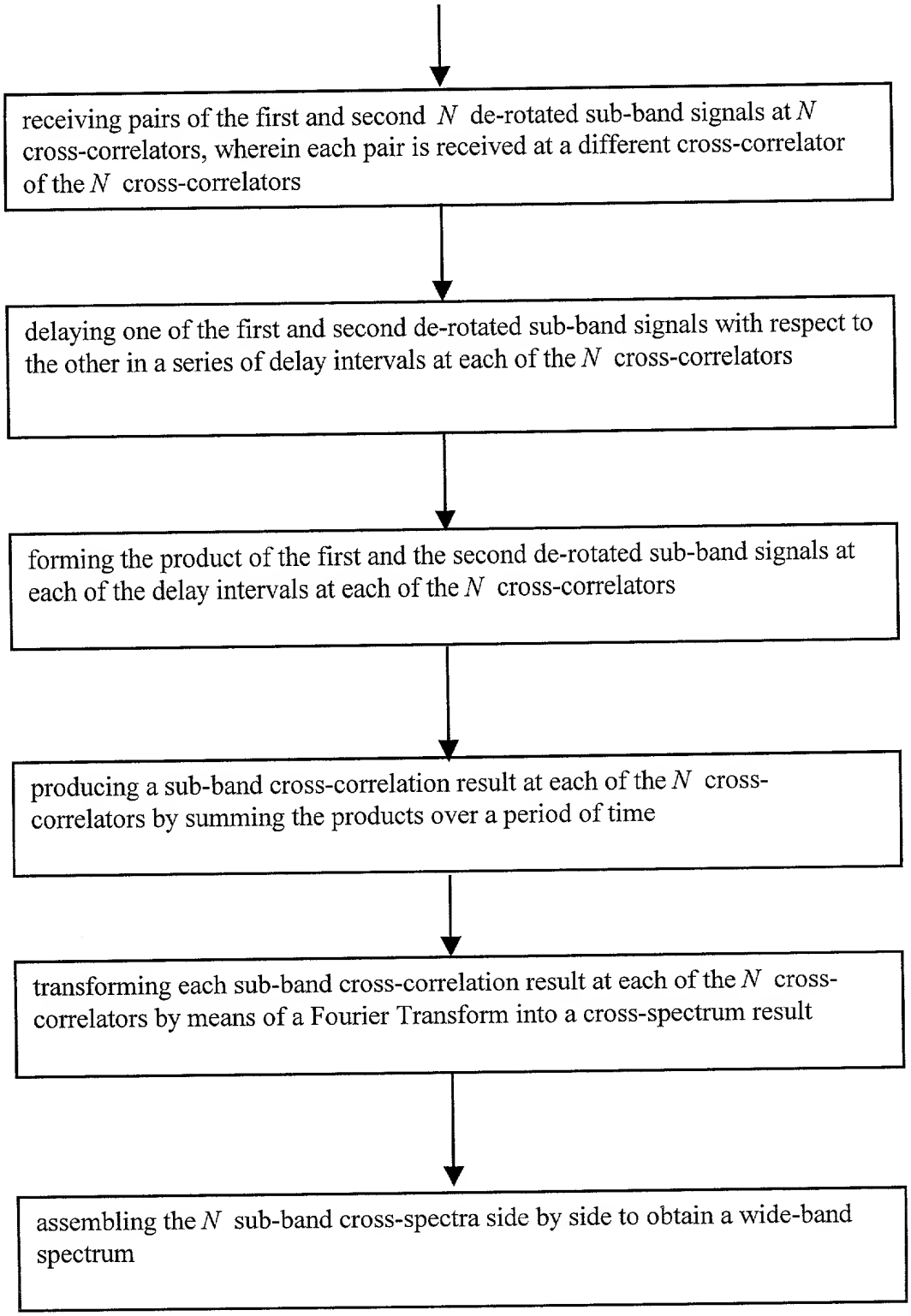

Fig. 1b (continued)

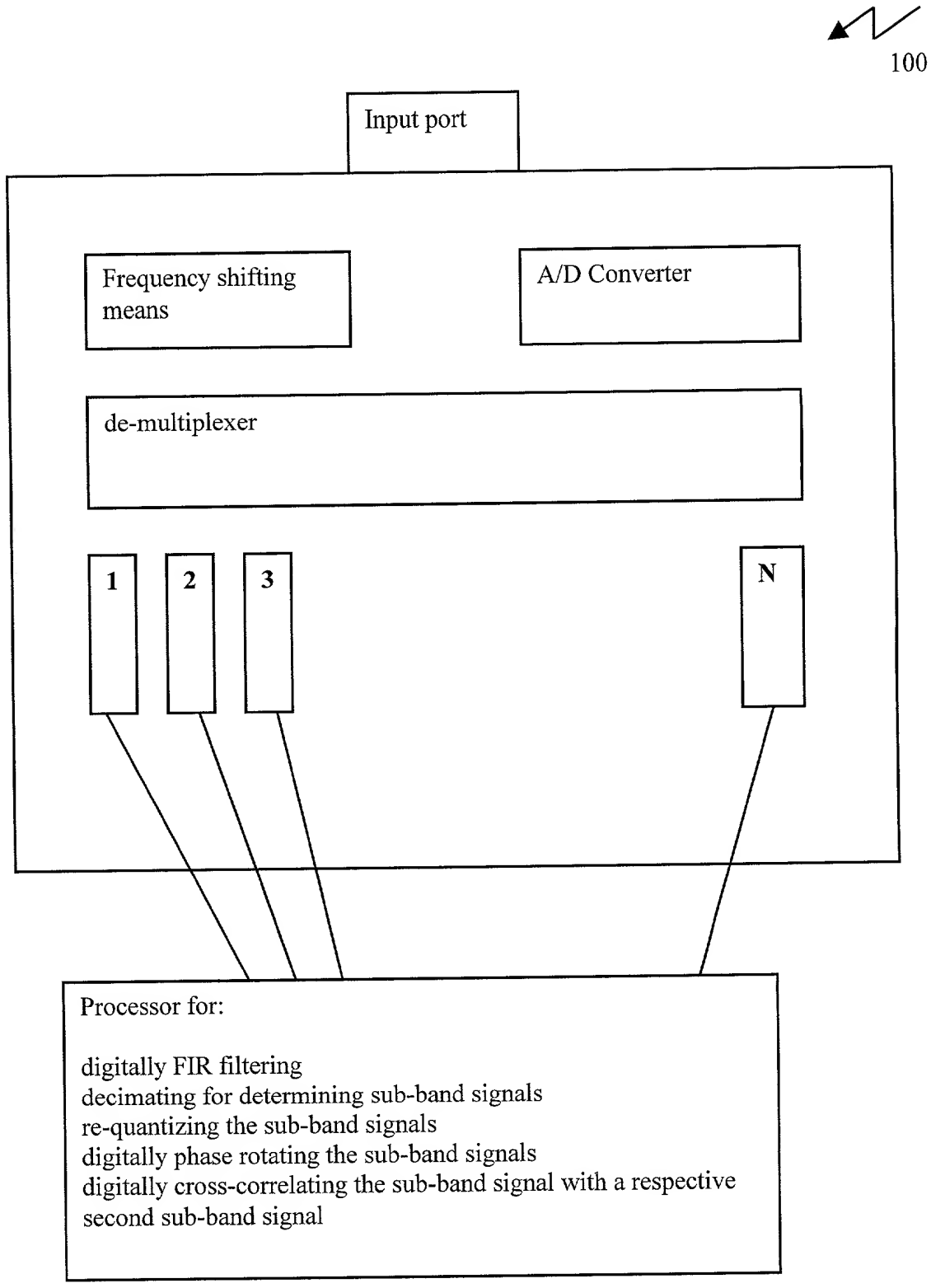
100
Input port
Frequency shifting means
A/D Converter
de-multiplexer
1
2
3
N
Processor for:
digitally FIR filtering
decimating for determining sub-band signals
re-quantizing the sub-band signals
digitally phase rotating the sub-band signals
digitally cross-correlating the sub-band signal with a respective second sub-band signal

Fig. 1c

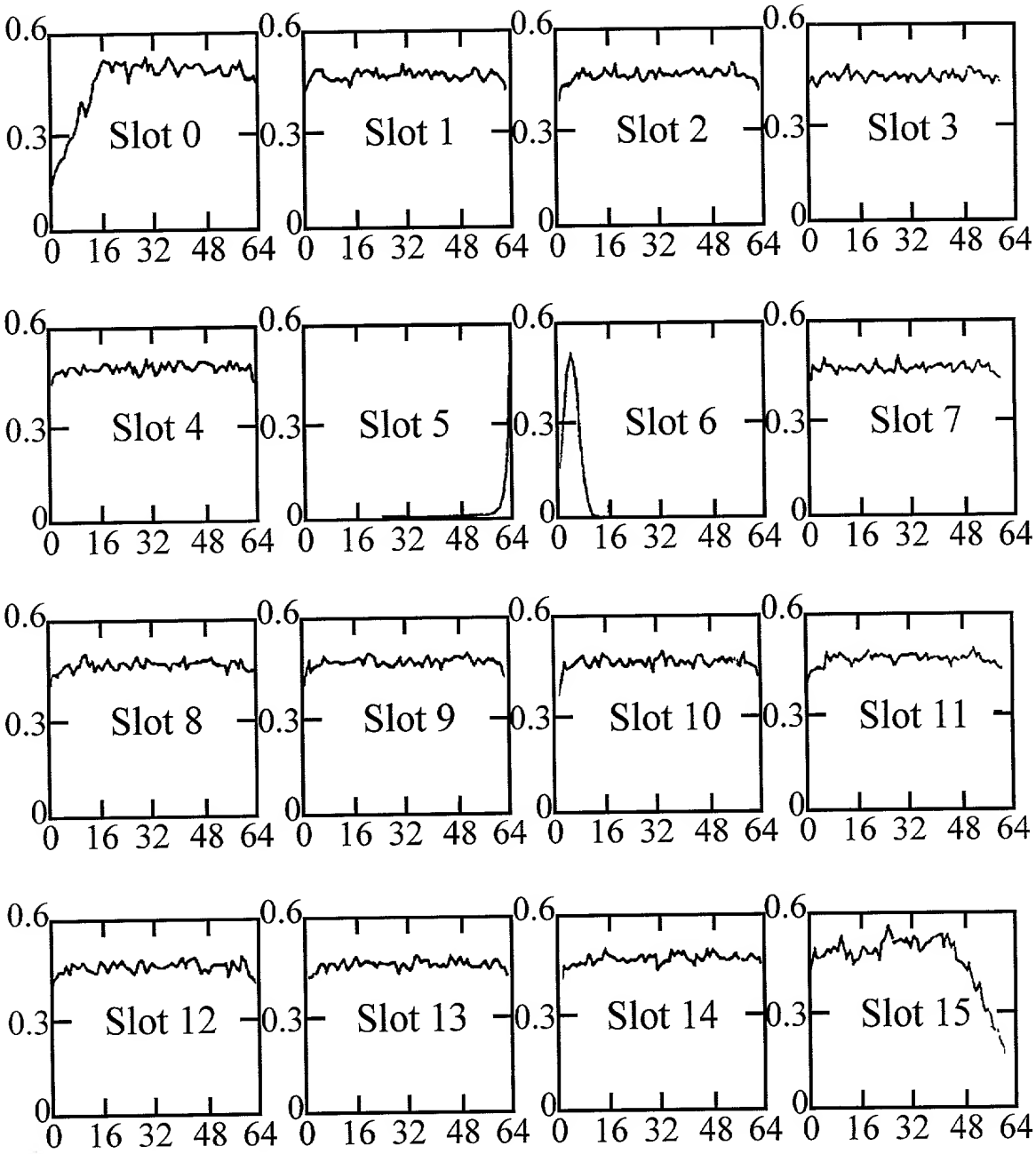
Slot 0
Slot 1
Slot 2
Slot 3
Slot 4
Slot 5
Slot 6
Slot 7
Slot 8
Slot 9
Slot 10
Slot 11
Slot 12
Slot 13
Slot 14
Slot 15
0.6
0.3
0
0 16 32 48 64

Fig. 2a

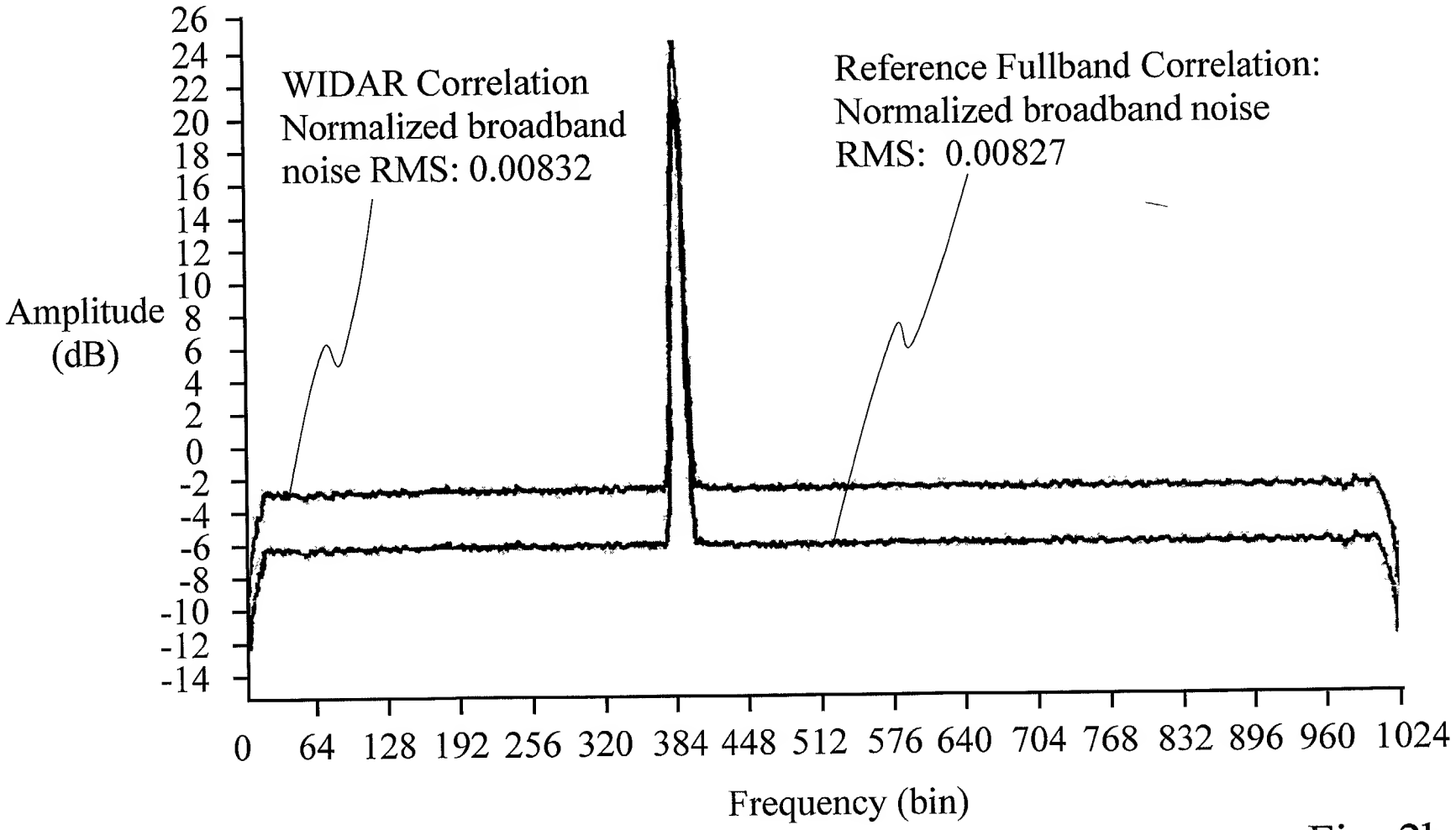

Fig. 2b

09/936819

Fig. 3a

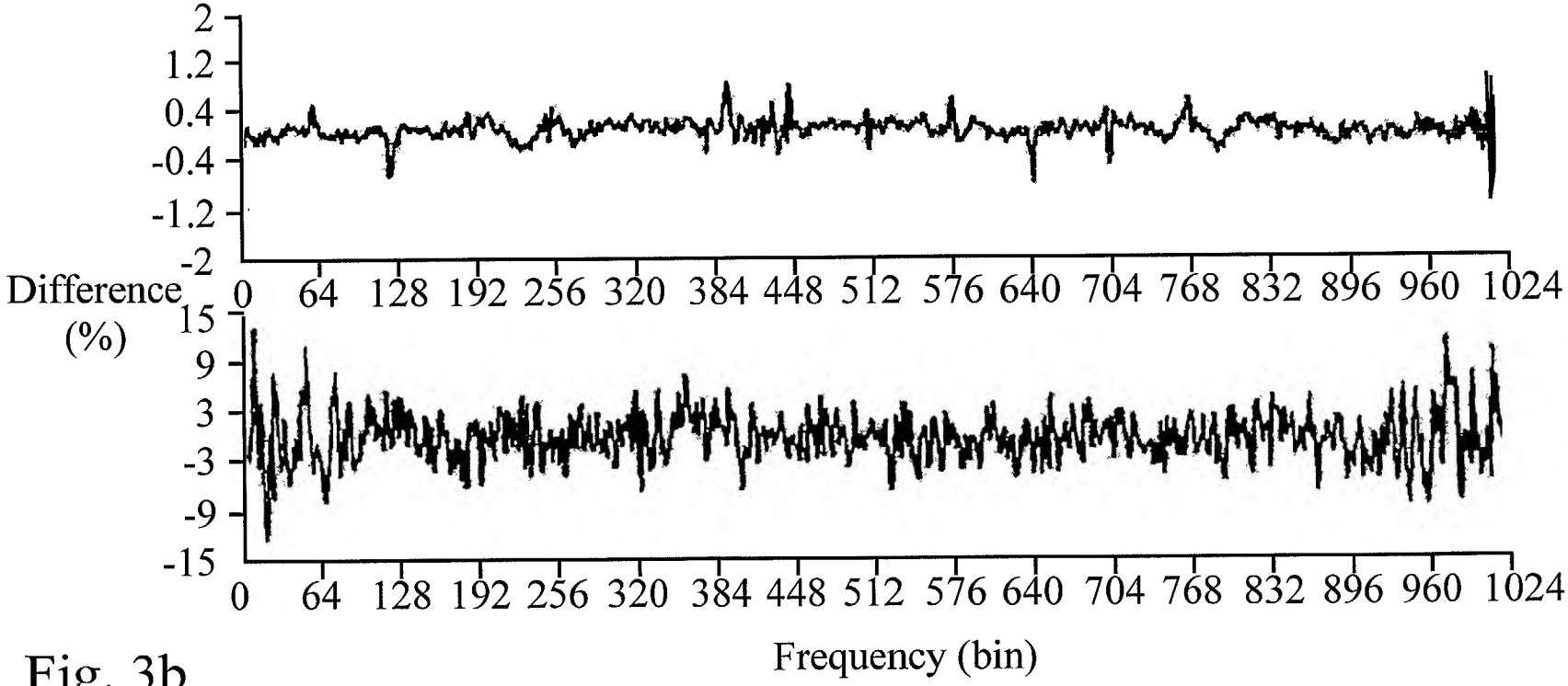

Fig. 3b

09/936819

TOT2TT"6T89E660

Fig. 4a

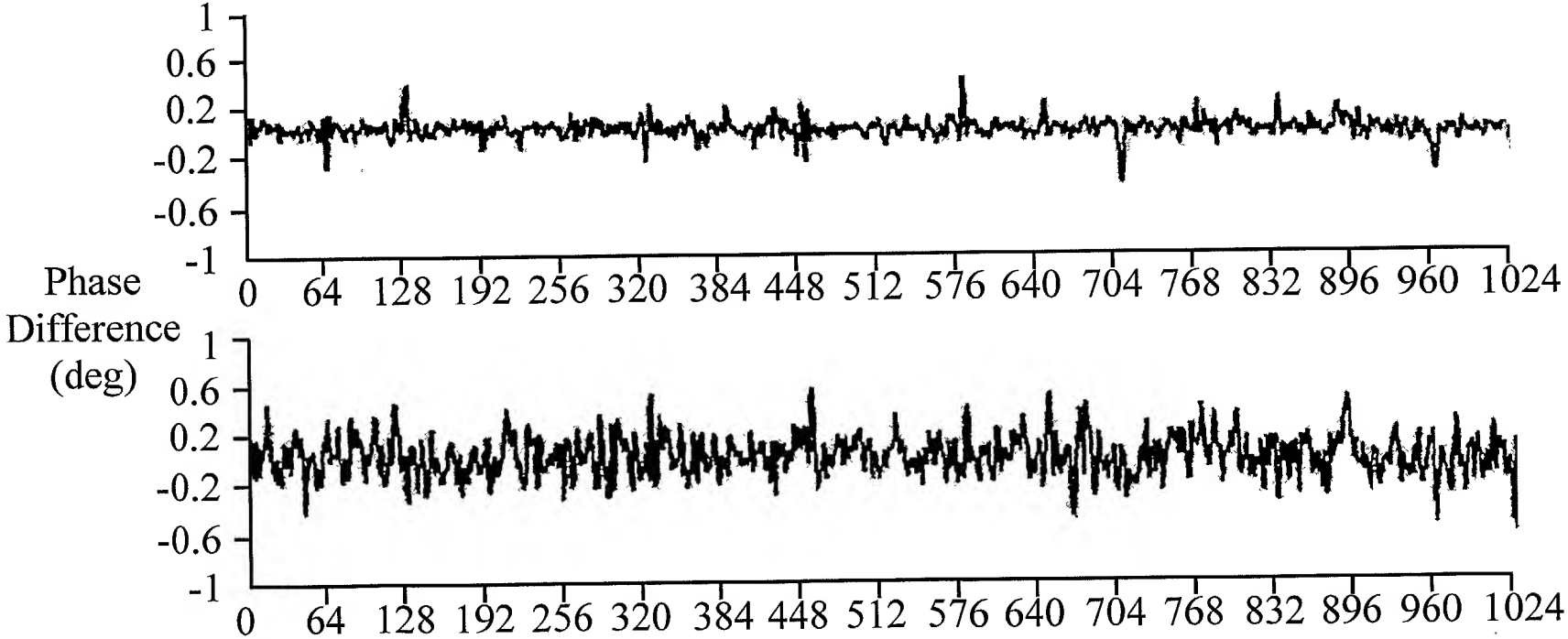

Fig. 4b

09/936819

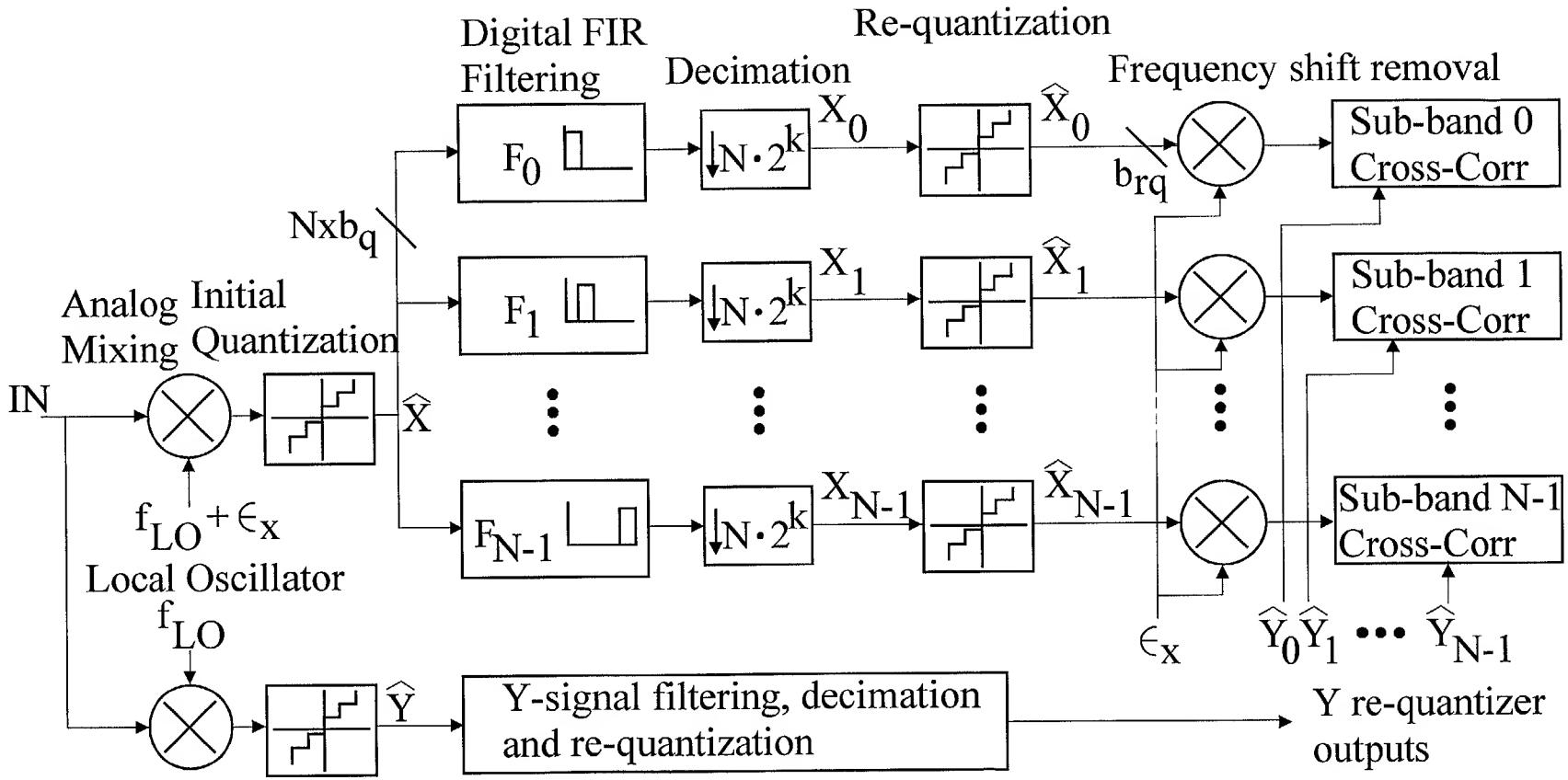

Fig. 5

09/936819

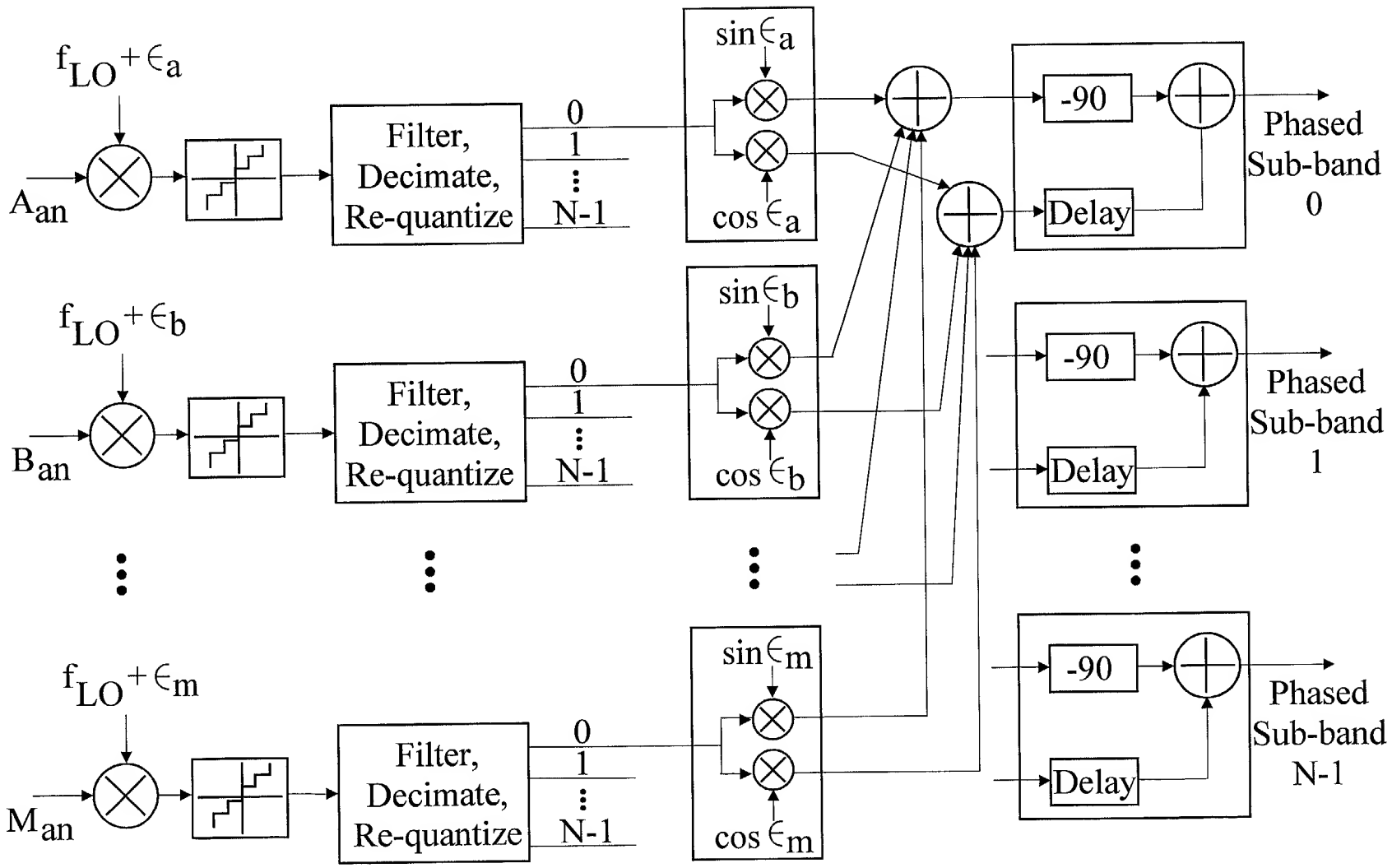

Fig.6a

09/936819

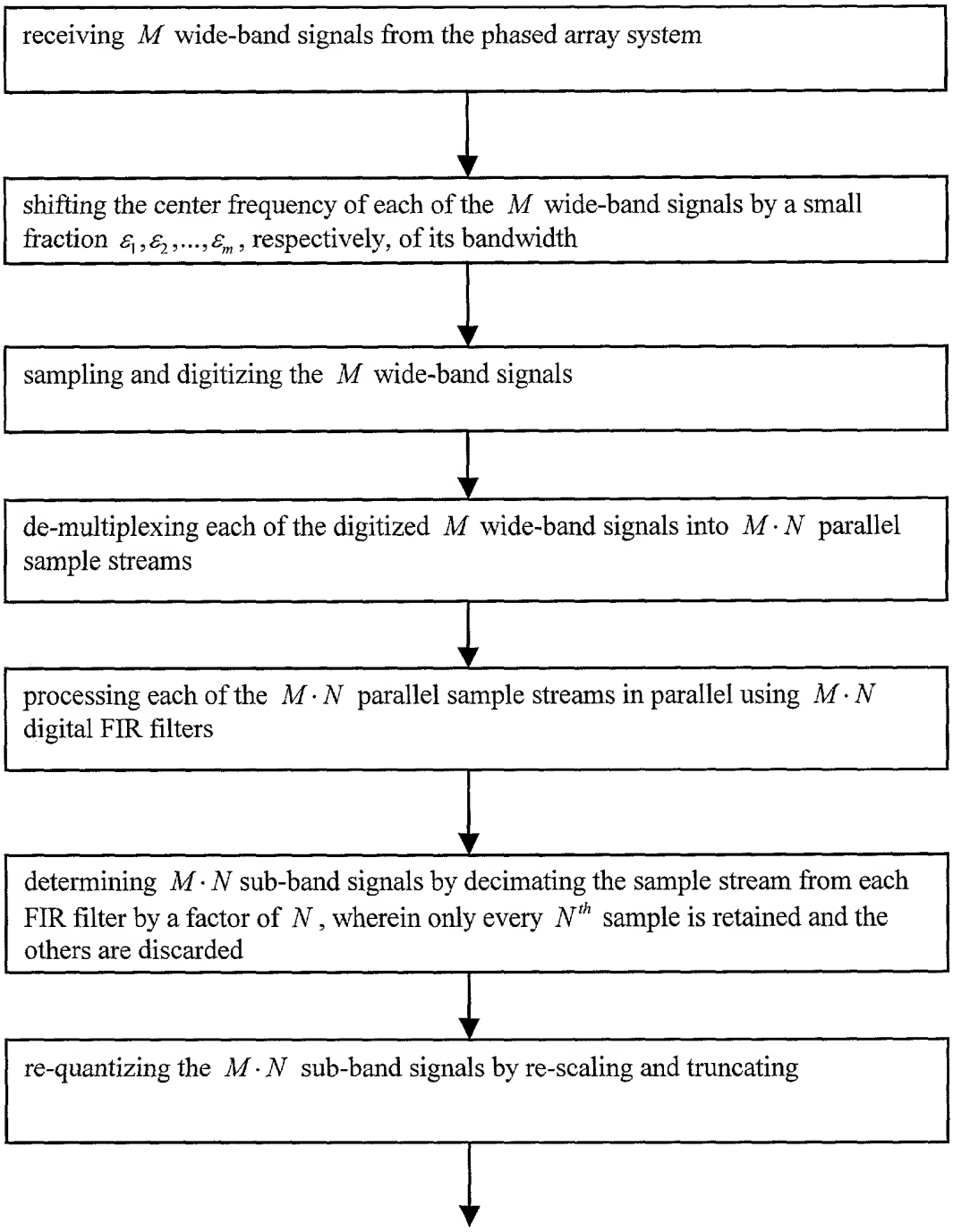
receiving M wide-band signals from the phased array system
shifting the center frequency of each of the M wide-band signals by a small fraction $\varepsilon_1, \varepsilon_2, ..., \varepsilon_m$, respectively, of its bandwidth
sampling and digitizing the M wide-band signals
de-multiplexing each of the digitized M wide-band signals into $M \cdot N$ parallel sample streams
processing each of the $M \cdot N$ parallel sample streams in parallel using $M \cdot N$ digital FIR filters
determining $M \cdot N$ sub-band signals by decimating the sample stream from each FIR filter by a factor of N, wherein only every N^{th} sample is retained and the others are discarded
re-quantizing the $M \cdot N$ sub-band signals by re-scaling and truncating

Fig. 6b

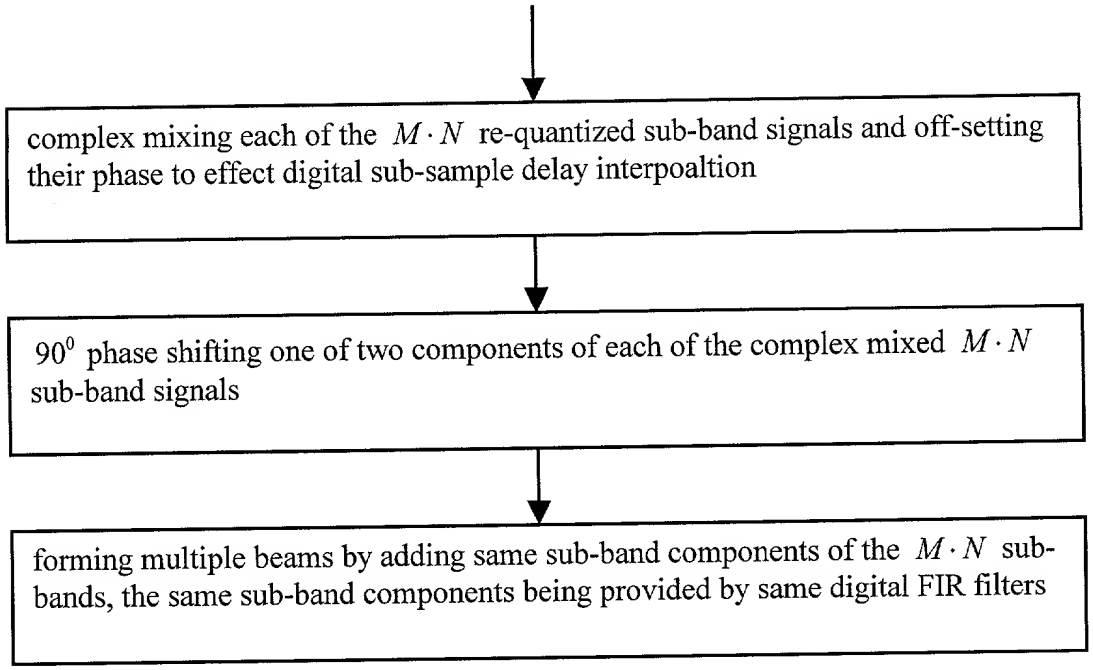

Fig. 6b (continued)